

IN THE SPECIFICATION:

Please amend the Specification, by inserting the following heading and paragraph beginning following page 21, line 14, as follows:

## 5                   Computation and Selection of 2D Branch Metrics

In an alternate implementation, one-dimensional branch metrics are combined to precompute at least two-dimensional branch metrics and then one of the precomputed at least two-dimensional branch metrics is selected based on a past decision from a corresponding state. In particular, for a multi-dimensional signal, where  
10 transitions in a trellis processed by a reduced-state sequence estimation technique correspond to multi-dimensional symbols, the branch metrics are precomputed and selected by precomputing one-dimensional branch metrics based on the precomputed intersymbol interference estimates; combining the one-dimensional branch metrics to precompute at least two-dimensional branch metrics; and selecting one of the  
15 precomputed at least two-dimensional branch metrics based on a past decision from a corresponding state. The selection of the precomputed at least two-dimensional branch metric can be performed based on an at least two-dimensional survivor symbol from a corresponding state. As used herein, the term “at least two-dimensional branch metric” is a metric for a signal component having a dimension of “at least two.” In addition, the  
20 term “at least two-dimensional survivor symbol” is a survivor symbol for a signal component having a dimension of “at least two.”